

Electricity,

The Universal Force.

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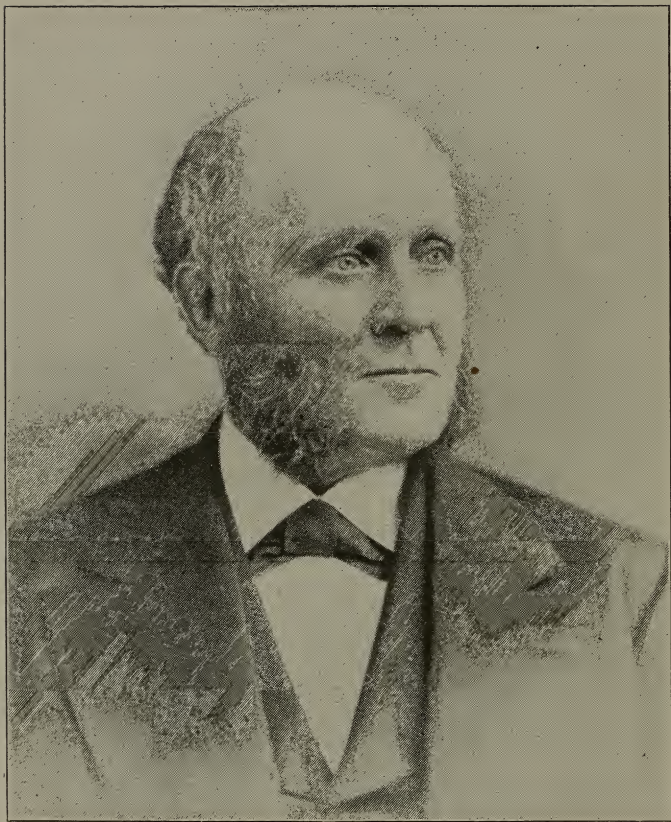
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ELECTRICITY,

THE UNIVERSAL FORCE.



BY

HENRY RAYMOND ROGERS, M. D.

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ELECTRICITY,

THE UNIVERSAL FORCE.

THE UNIVERSAL FORCE—ITS NATURE.

BUT one force exists, and that universal force is demonstrably electrical. All physical phenomena, every form and manifestation of force without a single exception may be traced to the mere transmutation of the electrical energy.

Force cannot be lost, wasted, or diverted. The currents of force which instantaneously and incessantly come from the sun to the earth, and hold those bodies in all their due relations, must, according to this law, return to the sun in equal volume and power. In this process is found a stupendous electrical circuit, a *terra-solar* circuit. In such interstellar action, and retro-action is embodied the secrets of the sun—the secrets of the Universe.

The earth is a magnet with a magnetic axis and a north, or positive-pole, and a south, or negative-pole. The sun and all stars are magnets polarized in

immensity. It is reasonable to suppose that all star-worlds are indued with such vast electrical powers for actual use; therefore, since those powers cannot be expended upon vacuous space, they must reach out to, and include in their operations, all their celestial neighbors.

In the action of the *terra-solar* and *inter-stellar* circuits, space and distance become annihilated, so far as electricity is concerned, and all the stars of the universe are as if standing side by side. Not only the stupendous energies, but the gentlest and most genial influences of the sun reach out to Neptune, 2,800,000,000 miles distant, with the same facility as to the Earth, Venus, or Mercury.

That vacuum is the most perfect condition for electrical transmission has been demonstrably shown by Edison, Edlund, Gordon, Crookes, and many other electricians.

Electricity is substantial. It may be amassed, condensed, and rarefied; and mass, condensation, and rerefaction are properties essential to matter.

Electricity although demonstrably material, is not a self-existent entity. It acts, and passes on, and must be incessantly renewed. Its development on the scale of the universe is due to the same processes,

and subject to the same laws, as on the scale of the laboratory.

THE UNIVERSAL FORCE—ITS SOURCE.

Aristotle sought the source of the universal force and discovered it where alone it was possible to find it, i. e., in the *motions* of the starry worlds. His words were these, viz: "All force is due to motion—the impulse of the motion of the heavenly bodies." This prophetic inspiration of Aristotle has opened up to mankind a new revelation in the field of cosmical science.

That the universal force is due to MOTION is today demonstrable. MOTION, as a COSMICAL PRINCIPLE, now finds its true position in the problem of the universe. Thus, the POWER of the UNIVERSE is embodied in the MOTIONS of the STUPENDOUS STAR-MASSSES, with their INCONCEIVABLE VELOCITIES. In other words, the universal force is THE ENERGY OF CELESTIAL MOTION. That this source is adequate to the supply of force for a universe, will not be questioned.

It is a principle in science that a body once set in motion in vacuous space must continue to move onward with its initial velocity, forever. The starry World-magnets move in their pathways with such ex-

actness, and uniformity, that eclipses are calculated backwards and forwards for thousands of years.

The *modus operandi* of the conversion of the motions of the star-masses, together with their great velocities, into actual working energy, is now demonstrable.

Guericke and Volta experimentally demonstrated that every movement of one body near another, disturbs and puts in motion electrical currents in both bodies. This principle applies alike on the scale of the laboratory and the universe. The *terra-solar* and *inter-stellar* circuits supply the medium for the transmission of the electrical energy developed through the motions of the stupendous celestial dynamos.

Two great cosmical systems now stand before the world in strange and striking contrast, viz: 1, the system of all past ages founded upon a purely hypothetical ‘*fireball*’ sun, and 2, a wholly new system with MOTION as a COSMICAL PRINCIPLE for its basis, i. e., the motions of the star-masses with their inconceivable velocities.

Most stupendous results are involved in this question, aye, nothing less than the cosmical philosophy of the future. If one of these systems be true, the other must be false. The statement of this question

is simple, and the issue clearly defined and free from either logical difficulties, or puzzling mysteries.

The incandescent system calls for an enormous expenditure of heat on the part of our sun, and the millions of star-suns, and the temperature claimed by science, reaches into the millions of degrees, (Fahr.) Heat is destructive, and such an elevated temperature, without an adequate supply of *star-fuel*, would have ended in the destruction of our sun and the millions of star-suns ages ago.

Another difficulty in the way of the present cosmical system is found in the claims of the infallible law of conservation of force. This law teaches that neither matter, motion, nor force can be lost, wasted, nor diverted. An incandescent sun without resources within and of itself for the renewal of its substance, and its energies, is the very impersonation of wastefulness:—the most prodigious wastefulness which science permits us to contemplate.

An incongruity in the present cosmical system which science never has made account of, is the fact that this so-called incandescent sun, with its 5,000,000 (estimated) degrees of temperature, *does not consume*. The sun never has been known to lessen a single foot in its dimensions, nor a single foot-

pound in its energies, and the distance between the sun and earth never has perceptibly changed.

The foregoing considerations, or either of them, are fatal to the theory of an incandescent sun. But all these are as "trifles light as air," in comparison with another fact, viz: that a "*fireball*" sun cannot sustain human life—cannot be the dwelling place of immortal beings.

We turn from this humiliating picture of millions of star-suns fit only for "*burning*," to the same millions of star-suns filled with all life, with beings divine in their natures, and with all activities. This new philosophy conflicts with no known fact, neither with any dictate of reason, nor with the eternal fitness of things.

This new cosmology is founded upon MOTION AS A COSMICAL PRINCIPLE, THE ENERGY OF CELESTIAL MOTION, in other words the motions of the dynamo-magnet stars.

GRAVITY.

The fact that gravity reaches out from star to star instantaneously, and incessantly, stands unquestioned, and this fact stamps this energy as electrical. No other agency can reach out to the limits of space and act instantaneously and incessantly.

It is a law of electrical action that a body susceptible to electrical excitation, if placed in the current of an electric circuit becomes magnetic. The sun and earth form constituent parts of the great *terra-solar* circuit, and they and all things which they contain become vitalized with that power which we call gravity.

The currents of the *terra-solar* circuit after passing invisible and free through the 93,000,000 miles of vacuous space, find their first *resistance* at the earth. Electrical currents possess no power unless resisted in their progress. In the action between the sun-currents and the magnetic earth, the sun and earth become aroused to all their powers. Thus, the power which holds a hundred million star-suns and stars in all their due relations, is explained upon the simplest and clearest principles of electrical science.

The *modus operandi* of the action of gravity as an electrical phenomenon, is illustrated in Plate I. The earth and sun and all related spheres, being vast magnets excited into activity by their motions, their relations and movements are mainly due to polarity.

Thus, the earth's negative south-pole, S, Plate I, is in the field of the positive sun-currents on the 21st of December, and those bodies are then drawn into

their closest proximity, through electrical *attraction*. Six months later both the geographical and electrical relations of those bodies are reversed, and they are found at their greatest distance apart, through electri-

THE EARTH'S ELLIPTICAL ORBIT.

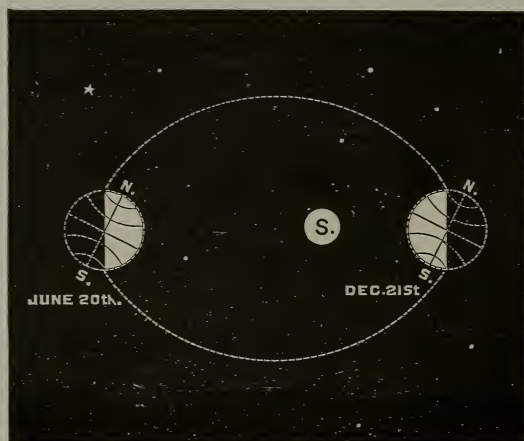


PLATE I.

cal *repulsion*. Whether attraction or repulsion, shall exist between those bodies at any given time, depends altogether upon the relative positions of their poles.

The essential character of the great cosmical principle, gravity, which was but faintly discerned by

those great masters in science, Aristotle, Newton, Humboldt and Faraday, now becomes fully revealed through our modern development of electricity.

Newton supposed gravity to be in some manner related to electricity. He said: "The ultimate particles of matter are endued with inherent forces, or powers, of attraction and repulsion. Newton thus recognized in gravity the operation of a dualistic power, a double acting power which exists in no other form of force save electricity. This idea of Newton, i. e., the *repulsion* of gravity, never has been practically applied to the solution of this great problem. Thus, the highest teachings of this great master have been most strikingly and persistently ignored and disregarded.

On the concluding page of the mechanical portion of his PRINCIPIA, are the following words: "And now we might add something concerning a most subtle Spirit which pervades and lies hid in all gross bodies by the power and action of which Spirit the particles of bodies attract each other at near distances and cohere if contiguous; and electric bodies operate to greater distances, as well repelling, as attracting." "But," he continues, "these are things which cannot be explained in a few words, nor are we furnished

with that sufficiency of experiments which is required to an accurate determination and demonstration of the laws by which this electric or elastic Spirit operates." In these words Newton speaks almost prophetically, as if dimly conscious that this spirit, so wonderful and mysterious, might yet afford the *key* to solve the enigma of gravitation.

Farraday was fully impressed with the idea of a relationship between gravity and electricity, and for many years endeavored to demonstrate the same, but was unsuccessful. A paper recorded in the 24th Series of Experimental Researches, received by the Royal Society, Aug. 1, 1850, on the possible relation of gravity to electricity, he finishes with the following words: "Here end my trials for the present. The results are negative but they do not shake my strong feeling of the existence of a relationship between electricity and gravity." He further said: "The discovery of a relationship between gravity and electricity would have a bearing in importance beyond all conception in elucidating not only the facts connected with these subjects, but also others of a high importance, there being scarcely a limit to the subjects which would be illuminated by it." From the study of electricity in the field of its greatest manifestation,

i. e., gravity, we shall be better prepared to grapple with the problems which have to do with celestial motions, with celestial electrical currents, with inclinations of axes, and eccentricity of orbits, with dimensions of spheres, and the velocities of their motions.

The discovery of an actual relationship between gravity and electricity is now, *a matter to be accomplished* *un fait accompli*.

THE EARTH'S AXIAL ROTATION.

The conception of the earth and sun as magnets, applies equally to the explanation of the earth's axial rotation. It is demonstrable that at precisely the same hour, viz: 2 o'clock p. m., heat intensity and magnetic intensity at the earth's surface, are coincident. From that hour the electrical *and vital* energy decreases until 2 o'clock a. m., when it is found to be the least, or *nil*. Thus, at 2 o'clock p. m., the positive sun-currents on the one hand, and the positive earth's surface and atmosphere at 30 degrees west-meridian, on the other hand, being in like electrical conditions, i. e., electro-positive, mutually repel each other, and the consequent *push* moves the earth in rotation. The rotating earth turning eastward, is continually carrying its negative condition of the night, into the field of the positive sun-currents, and a mutual attraction takes place, with a consequent *pull*, upon that

side. Thus is engendered an incessant *attraction* on the east side of the earth, and a *repulsion* on the west side, giving to that body its axial rotation.

SOLAR CONE.

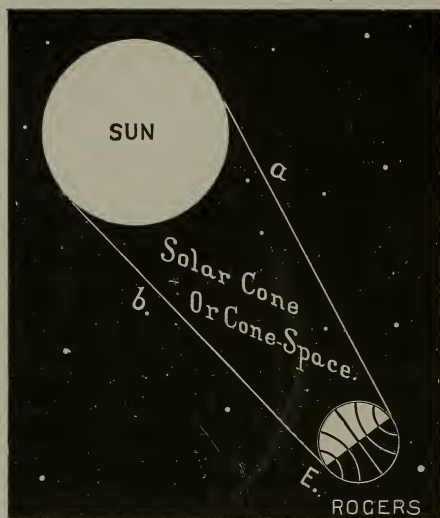


PLATE II.

SUN HEAT.

The action between the sun, and earth, is not wasteful, as hitherto claimed, but direct. The electrical process of heating and lighting the earth, is illustrated in Pl. II. If the lines *a. b.* be drawn from the sun to the earth, tangent to both, they will form

a tapering space, with the sun at the big end, and the earth at the small end, giving to the space the form of a truncated cone. Within this cone-shaped space, all the activities between the sun and earth take place.

The temperature of the universal space is variously estimated at from hundreds to millions of degrees below zero. Mr. Secchi said:—18,000,000 degrees below zero. No particle of heat can come from the sun to the earth through such intervening coldness. Neither the sun, nor the earth possesses resources adequate to the supply of heat for purposes of habitation, much less for resisting the effects of the surrounding cold of space.

The latter fact is most stupendous in its import. It settles at once, and forever, the question of an incandescent, ever-burning sun. The amount and kind of heat adequate to the protection of each star-world, never has been made account of. If every celestial body were a mass of coal, ignited to its center, the universal space would not be raised in temperature a single degree. Thus, our sun surrounded by the cold of space would quickly become frozen beyond all usefulness, if dependent upon its own internal resources for the power to counteract such coldness of space.

Sunheat and sunlight are due to the same causes and subject to the same laws. Each diminishes in the same ratio sunward.

The currents of the great electrical circuit in their round from the sun to the earth and back again to the sun, pass invisible and free through the 93,000,000 miles of cold and darkness, and their presence first becomes apparent here at the earth, in the gentle heat and light which they develop within our atmosphere, where the electrical sun-currents first meet *resistance* to their progress. Thus the heat and light which hitherto have been attributed to the sun itself, can be developed only in the lowest strata of our atmosphere.

SUN LIGHT.

Sunlight finds its development in the foregoing processes. The scientist has made no pretence of asserting what sunlight is, essentially. The most recent conception in regard to the sun is, that it is a vast and dazzling mass, composed of incandescent vapors, or gases.

In all pictorial illustrations of that body, it is shown with a bright face and with bright lines radiating outwards from it, Pl. III. These bright lines imply that actual heat and light, developed within and of itself, radiate in all directions and to all distances

into the cold and darkness of space. Hitherto science has recorded no other explanation, and, today, the scientist offers no other. Thus, science stands committed to the theory of an incandescent, dazzling sun.

THE SUN OF SCIENCE TODAY.



PLATE III.

That sunlight diminishes in the same rapid ratio sunward, as sunheat, is now abundantly demonstrable. At one and a half miles upwards the diffused light of the atmosphere is shown to be only from one-tenth to one-twentieth as great as at the surface of the earth.

At three and one half miles upwards, experiments made under the auspices of the distinguished spectroscopist Mr. Janssen, conclusively show that at that elevation the spectroscope no longer reveals the colors of the solar spectrum; only the yellow was seen *and that, too, without lines*. From that point upwards the sun's light continues to diminish in the same rapid ratio. Flammarion says:—"Outside of the atmospheric envelope of all spheres there is only the black of infinite space." The millions of star-suns and stars being surrounded by the black of infinite space, no light can leave their borders.

If the millions of star-suns could project light in all directions and to all distances, space would be illuminated and there would be no night throughout the universe.

Plate IV illustrates the sun of the new cosmology. It shows that body as surrounded by darkness and the stars. Plate IV therefore reveals some of the highest truths in cosmical science, viz: that something which is neither hot nor bright passes to, and fro, between the sun and earth, and between all the stars, and develops in the atmosphere of each, all needed heat and light; also that the stars are heated and lighted by

some agency, and through some process which science never has satisfactorily explained.

In view of the electrical theory of explanation of sun-heat, and sun-light, the philosophy of production

THE SUN OF THE FUTURE.



PLATE IV.

of those phenomena becomes simple and clear. Thus, the atmosphere performs the part of a vast carbon, *an aerial blanket carbon*, so to speak; and through the *resistance* which the atmospheric cushion offers to the passage of the currents of the *terra-solar cir-*

Electricity passing through rare gases develops a glow. - through a perfect vacuum no result,

cuit, heat and light become developed everywhere at the surface of the earth, where alone they are needed. The sun therefore, may be dark, cool and habitable and still perform *its* part in heating and lighting the earth the same as now.

Since atmospheric heat and light are developed and incessantly renewed through the electrical activity ever in play at, or near, the surface of the earth, therefore, man need no longer be deceived by the apparent heat of the sun, nor blinded to the perception of great cosmical truths, by its glittering superficialities. It may not now be said that sunheat and sunlight *come*, but rather that they *are*.

THE SUN'S DAZZLE.

The most striking, and at the same time the most mysterious phenomenon of the sun, is its dazzle, yet this phenomenon is explainable upon the simplest principles of electrical and optical science. That delicate and powerful optical construction, the eye, performs a function never yet claimed for it. The electrical currents which come invisible from the sun, through the darkness of the universal space, strike the convex surface of the corneal lens, and become converged to the pupillary opening. In their passage through this lens they become increased in power.

On the passage of these rays through the crystalline lens they become greatly intensified. From thence they become diffused over the retina through the action of the concavo-convex vitreous body, or lens, with dazzling, blinding effects. Thus, this deceptive dazzle is not located at the sun, neither in "the black of infinite space," nor in our atmosphere, but only in the depths of the eye of the observer.

The brightness of the innumerable star-suns, billions and trillions of miles distant, cannot come as light, through the intervening darkness of space, but rather through the telescopic arrangement of the lenses of the eye, the electrical star-currents impress upon the retina the *sensation of brightness*.

Thus, while there is no object in the whole universe so striking in its appearance, and so familiar to the eye, as the sun, there is no object which has proved so deceptive, and so misleading to mankind. The lessons of the mountain-top, the aeronaut and, the black of infinite space, have been most strangely and persistently ignored, and disregarded.

There is perhaps no fact, or principle, in the whole domain of science more clear and decisive in determining what shall be the cosmology of the future, than

the darkness of infinite space. This darkness is incompatible with sunlight. *This fact is conclusive.* *very*

MOON LIGHT.

The earth is lighted by the moon at night not through reflected sunlight, since currents of actual light cannot reach the moon through 93,000,000 miles of darkness; neither can the moon transmit actual light to the earth, through 240,000 miles of intervening darkness, but rather, electrical currents from the moon develop within our atmosphere the gentle moonlight.

COLD. (Atmospheric.)

It is a principle in electrical science that if a current of electricity when passing in one direction produces heat, when passing in the opposite direction it will develop cold. Thus heat and cold are alike transmutations of the electrical energy. They therefore are correlated, as really and truly as are the positive and negative conditions in electricity.

Cold as an entity is as real as heat.(?) It has as distinctive operations, and as clearly defined laws. The powers of cold are unquestioned. The almost fabulous polar ice fields show its might, and the delicate frost-pictures upon our window panes, attest the action of a real force.

To compare it with heat, it is not less active. Heat expands, cold contracts. Heat drives the needle of the galvanometer in one direction, and cold drives it in the opposite direction. Cold is subject to the same laws of reflection. The absence of a thing i. e., *nothing*, cannot be reflected from a polished surface. Cold equally affects the senses. The marvelous power exercised by cold may not be attributed simply to the absence of heat, a mere negative condition. Thus, cold may no longer be regarded as practically a nonentity. The foregoing facts give to cold, equal status with heat, in the category of the so-called great physical forces.

can cold
be
reflected?

THE ATMOSPHERE.

In the light of the electrical theory of force, the atmosphere reveals a constitution such as never has been claimed for it, and performs functions most momentous in their character.

The atmosphere everywhere surrounds the earth like a cushion. Its mass extends upwards three or four miles at its densest portion, and lessens in its depth and density progressively towards the poles.

The earth-magnet is filled to repletion with the electrical energy, and this electrical principle reaches out beyond its visible borders and constitutes its sur-

roundings, as is the case with other magnets. Electricity therefore largely, and perhaps mainly, constitutes the atmosphere. Science tells us that the atmosphere is a vast storage-reservoir of the magnetic, or electrical principle. Since electricity is substantial, and so largely constitutes the atmospheric mass, it is entitled to a corresponding recognition in the category of atmospheric constituents.

The electrical currents of the *terra-solar* circuit, when passing through vacuous space are almost as tenuous as spirit, and the slight *resistance* offered by the tenuous atmosphere develops therein the gentle sunheat and sunlight.

These very gentle diffused currents from the sun, when converged to a focus, or when meeting the resistance of a poor conductor, develop stupendous heating powers. Thus, but for the interposition of the atmospheric cushion, these currents would meet an amount and kind of resistance at the surface of the earth, which would develop a degree of heat that would unfit the earth for habitation.

The Sun and planets, and moons of planets become visible only through their electric-lighted atmospheres. Without an atmosphere thus electrically

lighted, no star-world would be visible, and the universe would be a chaos.

The power of the sun's currents, when not intercepted by the atmosphere, is seen in the arctic regions where the air is most tenuous. Here the face of the arctic explorer becomes the *object of resistance* to these currents. The arctic sun is always low on the sky, and its rays, consequently, are most oblique and powerless, yet they burn the unprotected skin, even in low temperatures.

Lieutenant Gilder says: "Nowhere on the earth is the traveler more annoyed by acute sunburn than in the polar regions. The heat of ordinary exercise compels him to throw back the hood of his fur coat, and, by exposing his head, his face not only becomes blistered, but his entire scalp is affected as severely as if a bucket of scalding water had been poured on him."

Lieutenant Schwatka tells us that his whole party, while on a sledge journey, were so severely burned that not only their faces but their entire heads were swollen to nearly twice their natural size.

The atmosphere, with its electrical mass as a constituent, with its new, and vast, and most vital func-

tions, and with the field of its operations so infinitely enlarged, now begins a new career, a new history.

FOURTH FORM OF MATTER.

Electricity may be considered the long and unsuccessfully sought for *Fourth Form of Matter*. The sole and indispensable requirement for that high distinction is, that this fourth form, shall be as much more tenuous than gaseous matter, as the gaseous is more tenuous than the liquid, or the liquid than the solid. Since electricity passes through solid walls, and through the solid earth, with as much freedom as wind through a grove of trees, no one will question that it meets that crucial test.

THE SUN'S HEAT AND LIGHT.

Since the so-called sunheat and sunlight are phenomena of the lowest strata of our atmosphere; the “*burning*,” dazzling, sun of the past—that vast celestial “*fireball*,” must soon give place to a sun filled with life, intelligence and beauty, like unto the earth.

The identity of constitution of star-suns and stars is no longer questionable, and this principle is now accepted by some of the highest authorities in the field of science. Since this conclusion can not be controverted, and since the sun is constituted like the earth, the demands of that body for indispensable

heat, and light, must be met in identically the same manner that the earth receives its supply, i. e., that of the awakening of the *sun's* atmosphere into heat, light, and life-giving effects, through the action of the return-currents of the circuits in action between itself and all of its satellites.

But one force exists, and, since the manifestations of that universal force are demonstrably electrical, the inference is both legitimate, and logical, that force in its lesser forms is electrical. This fact is now demonstrable.

Habitability is the highest attribute of a star-world, and man is the highest constituent of the earth-star. The sun in all its grandeur, sublimity, and power therefore cannot be rated lower in the great cosmical scale, than the diminutive earth, a million and a quarter times smaller. The sun therefore, and all stars are magnets, and inhabitable.

The estimate of the number of the stars, as advanced by distinguished astronomers, reaches nearly 100,000,000. Every star is like unto the earth, a dynamo-magnet, polarized in immensity, and every dynamo-magnet star *in motion*, develops electricity. Thus 100,000,000 dynamo-magnet stars *in motion*,

are capable of producing electrical energy sufficient
→ for all demands for power for a universe.

“*Conservation*,” as a fundamental law of cosmical science, is now universally accepted, and, since the electrical energy developed through the action of the *mass* and the *velocities* of a universe of stars, can be neither lost, wasted, nor diverted, it must constitute the universal force.

THE HYPOTHETICAL BURNING SUN.

The foregoing cosmical facts and principles show the supposed *incandescent sun* in its true character, *i. e.*, as a gigantic illusion—an unmitigated fallacy. Thus, while the mere superficialities of that body—its apparent heat and brilliancy—have controlled the minds of men during all the past ages, the evidences against that hypothesis have been abundant, demonstrable, and wholly unquestioned.

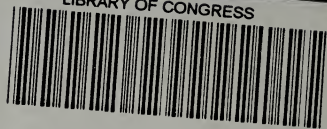
THE UNITARY SCIENCE, THE SCIENCE OF THE FUTURE.

According to the opinions of the most distinguished authorities in the field of science—Aristotle, Humboldt, Agassiz, and a multitude of others, the distinguishing feature in the coming philosophy will be UNITY, and electrical science reveals all worlds as one, all

force as one, all life as one, the universe a UNIT. Since all physical phenomena are now found to be merged into a single principle of nature, the UNITARY SCIENCE becomes the science of the future, with its foundations securely resting upon the greatest of cosmical principles, i. e., ELECTRICITY, THE UNIVERSAL FORCE.

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